

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

June 18, 2009

## Cockpit Voice Recorder - 12 Errata

### Group Chairman's Factual Report by Joseph A. Gregor

#### A. EVENT

Location: Owatonna, MN  
Date: July 31, 2008, 09:45 Central Daylight Time (CDT)\*  
Aircraft: BAE-125-800A, N818MV  
Operator: East Coast Jets, Flight 81  
NTSB Number: DCA08MA085

The CVR group re-convened on May 15, 2009 for the purpose of adding entries into the CVR transcript describing several instances of mechanical noise recorded by the cockpit area microphone during the last few minutes of the flight. An Addendum was prepared cataloging these additions and changes. These changes remove from the original transcript the entry for [sound similar to mechanical clunk] occurring at 09:45:11.6, and add an entry for [sound similar to airbrakes/lift dump handle going to lift dump position] occurring at 09:45:11.3; for the purpose of providing a more accurate timing and description for this sound. In addition, one typo was corrected changing RDO-1 to RDO-2 at 0933:40.5.

The following items should be changed in the CVR transcript and Addendum to accurately reflect the consensus of the Group:

#### 1. Page 12-25, CVR Transcript, AIR-GROUND COMMUNICATION:

##### Change:

09:33:40.5 RDO-1	Rare Air at Owatonna this is Hawker eight one eight Mike Victor.
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\* All times are expressed in Central Daylight Time, unless otherwise noted.

**To read:**

09:33:40.5 <b>RDO-2</b>	Rare Air at Owatonna this is Hawker eight one eight Mike Victor.
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**2. Page 12-45 CVR Transcript, INTRA-COCKPIT COMMUNICATION:**

**Delete:**

09:45:11.6 <b>CAM</b>	[sound similar to mechanical clunk].
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**3. Page ii, Addendum:**

**Change:**

09:44:11.3 <b>CAM</b>	[sound similar to airbrakes going to dump].
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**To read:**

09:45:11.3 <b>CAM</b>	[sound similar to airbrakes/lift dump handle going to lift dump position].
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A revised and merged version of the completed and corrected CVR transcript is given in Appendix A. Communications highlighted in *blue* represent additions to the original CVR transcript. Communications highlighted in *yellow* represent corrections to entries still remaining from the original CVR transcript.

JOSEPH A. GREGOR  
Vehicle Recorder Specialist

# APPENDIX A

## CVR Quality Rating Scale

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

<b>Excellent Quality</b>	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.
<b>Good Quality</b>	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.
<b>Fair Quality</b>	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.
<b>Poor Quality</b>	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.
<b>Unusable</b>	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.

**Transcript of a Fairchild Model A-100 tape-based cockpit voice recorder, serial number 60249, installed on an East Coast Jets BAE-125-800A (N818MV), which crashed after and aborted landing at Owatonna Degner Regional Airport (OWA) in Owatonna, MN.**

## **LEGEND**

<b>CAM</b>	Cockpit area microphone voice or sound source
<b>HOT</b>	Flight crew audio panel voice or sound source
<b>RDO</b>	Radio transmissions from N818MV
<b>CTR</b>	Radio transmission from Minneapolis center controller
<b>APR</b>	Radio transmission from the Minneapolis and Rochester approach controllers
<b>FBO</b>	Radio transmission from the Rare Air FBO at Owatonna
<b>AWOS</b>	Radio transmission from Automated Weather Observation System at Owatonna
<b>-1</b>	Voice identified as the captain
<b>-2</b>	Voice identified as the first officer
<b>-?</b>	Voice unidentified
<b>*</b>	Unintelligible word
<b>#</b>	Expletive
<b>@</b>	Non-pertinent word
<b>( )</b>	Questionable insertion
<b>[ ]</b>	Editorial insertion

Note 1: Times are expressed in central daylight time (CDT).

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

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:15:01.0**

Start of Recording

**09:15:28.4**

Start of Transcript

**09:15:55.9**

**HOT** [sound of single chime].

**09:16:54.3**

**HOT-1** I was readin' (the) article in a magazine in Atlantic City about flight- flight options, (the) company flight option their top ten destinations and and Minneapolis was on there I guess there's sixteen fortune five hundred f-companies there we go there quite a bit you know?

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:15:28.4**

**RDO-2** center East Coast Jet eighty one three four zero.

**09:15:31.2**

**CTR** East Coast Jet eighty one three four oh roger.

**09:15:45.5**

**CTR** and East Coast Jet eight one reset your transponder squawk code two four seven two.

**09:15:49.4**

**RDO-2** two four seven two East Coast eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:17:10.1**

**HOT-2** really?

**09:17:11.3**

**HOT-1** we go there quite a bit you know?

**09:17:12.9**

**HOT-2** yeah.

**09:17:14.1**

**HOT-1** seems like kinda out of the way compared to like Chicago and 'cause usually we go to Minneapolis we go to Chicago Milwaukee.

**09:17:19.9**

**HOT-2** yeah er.

**09:17:22.5**

**HOT-2** yeah (we) do get out there quite a bit.

**09:17:26.2**

**HOT-1** there are worse places to be than Minneapolis I guess.

**09:17:28.1**

**HOT-2** yeah Minneapolis is alright.

**09:17:48.6**

**HOT-2** is this nearby Minneapolis?

**09:17:51.6**

**HOT-1** I'm not sure how far.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:17:59.4</b> HOT-1	ahm.
<b>09:18:01.9</b> HOT-1	M M ah M-S-P or S-T-P in in your VORs find out, what's that?
<b>09:18:10.2</b> HOT-1	probably M-S-P or S-T-P.
<b>09:18:25.5</b> HOT-1	VOR section.
<b>09:18:28.9</b> HOT-1	I don't know where it is but.
<b>09:18:30.6</b> HOT-2	*.
<b>09:18:36.1</b> HOT-1	there ya go.
<b>09:18:56.0</b> HOT-2	Minneapolis one fifteen point three.
<b>09:19:07.4</b> HOT-1	hundred and forty miles right over there so looks like it's about hundred only about twenty miles from there. that right?
<b>09:19:12.8</b> HOT-2	yeah it shouldn't be too far.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:19:15.9**

**HOT-2** I wonder if that's where they're goin' then  
Minneapolis?

**09:19:18.1**

**HOT-1** naw I think there's a casino that they're goin' to  
'cause this is Revel, Entertainment I think the  
build casinos.

**09:19:23.0**

**HOT-2** oh.

**09:19:26.7**

**HOT-1** so I think there's an Indian casino in Owatonna  
or whatever.

**09:19:29.8**

**HOT-2** yeah.

**09:19:30.7**

**HOT-1** Owatonna.

**09:19:31.9**

**HOT-2** Owatonna I wonder if it's like an Indian ah.

**09:19:34.5**

**HOT-1** probably.

**09:19:39.1**

**HOT** [unintelligible external transmission].

**09:20:13.9**

**HOT-2** I'm not gettin' it yet.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:20:15.4</b> HOT-1	okay.
<b>09:21:05.3</b> HOT-1	think we're gonna have to deal with any of that.
<b>09:21:14.2</b> HOT-1	'cause we should be comin' down here pretty soon.
<b>09:21:16.4</b> HOT-2	yeah.
<b>09:23:07.0</b> HOT	(* * Celsius dewpoint one six altimeter * niner eight six remarks lightening distance all quadrants*)
<b>09:23:19.2</b> HOT-2	twenty four.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:22:03.6</b> CTR	East Coast Jet eight one descend at your discretion and maintain flight level two four zero.
<b>09:22:07.9</b> RDO-2	two four zero East Coast eighty one.
<b>09:23:17.9</b> AWOS	Celsius. * niner.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:23:30.3**

**HOT-2** I'm gonna go off for a second.

**09:23:57.7**

**HOT** [unintelligible external transmission].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:23:21.9**

**AWOS** \* (municipal airport) automated weather observation (one four two three Zulu).

**09:23:32.5**

**AWOS** one zero thunderstorms rain three thousand five hundred scattered two four thousand five hundred broken six thousand zero hundred overcast temperature one eight Celsius \* dewpoint one six altimeter (two niner eight six) remarks lightening distance all quadrants \* \* .

**09:24:02.4**

**AWOS** Owatonna Municipal Airport automated weather observation one four two four Zulu weather winds calm visibility one zero thunderstorms rain three thousand five hundred scattered (two) four thousand five hundred broken niner thousand five hundred overcast temperature (one) six Celsius dewpoint one six altimeter (two niner eight six) remarks lightening distance all quadrants.

**09:24:36.2**

**AWOS** Zulu wind two three zero at zero eight visibility.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:24:57.6**

**HOT-2** well.

**09:25:00.4**

**HOT-2** calm te- calm ten miles two nine eight six forty five hundred scattered.

**09:25:09.0**

**HOT-1** alright.

**09:25:11.0**

**HOT-2** couldn't get the temperature.

**09:25:12.7**

**HOT-1** that's cool.

**09:25:20.4**

**CAM** [sound similar to hi-lo chime].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:24:41.2**

**AWOS**

Owatonna Municipal Airport automated weather observation one four two four Zulu weather winds calm visibility one zero thunderstorms rain three thousand five hundred scattered (ceiling) (four) thousand.

**09:25:20.3**

**CTR**

East Coast Jet eighty one contact Minneapolis center on ah one three four point two five.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:25:36.7**  
**HOT-1** two six zero.

**09:25:43.1**  
**HOT-2** yeah they're paintin' it what's the bases?

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:25:24.5**  
**RDO-2** thirty four twenty five East Coast Jet eighty one.

**09:25:33.1**  
**RDO-2** Minneapolis center East Coast Jet eighty one descending two five zero to two four zero.

**09:25:37.2**  
**CTR** East Coast Jet eighty one Minneapolis center roger you seeing that ah extreme precip at your twelve o'clock twenty miles?

**09:25:45.6**  
**RDO-2** ah w- we're paintin' it here and wha- what is the bases (report)?

**09:25:49.9**  
**CTR** say again?

**09:25:50.6**  
**RDO-2** the bases.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:26:05.5**  
**CAM** [sound similar to altitude alerter tone].

**09:26:19.5**  
**HOT-1** any lower?

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:25:52.3**  
**CTR** I have no idea what the bases are ah I know the tops are quite high, ahm I don't recommend you go through it I've had nobody go through it, ahm deviation if you go right you'd probably have to up oh maybe ah probably sixty miles north of Rochester if you go southwest you'd have to go down south of Mason City Iowa.

**09:26:13.9**  
**RDO-2** (I would) like to deviate to the right East Coast eighty one.

**09:26:16.4**  
**CTR** East Coast eighty one roger deviation right of course approved.

**09:26:20.2**  
**RDO-2** than- East Coast eighty one any lower for us?

**09:26:22.7**  
**CTR** ah standby.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:26:28.4**

**HOT-1** ah we're about a three ten heading.

**09:26:45.3**

**HOT-1** let's hope we get underneath it.

**09:26:46.7**

**HOT-2** yeah that's what I was thinkin' too.

**09:26:51.4**

**HOT-2** if he woulda descended us it probably wouldn't have been an issue.

**09:26:59.2**

**HOT-2** I mean fifty miles out we're still at twenty five thousand feet, twenty four thousand feet.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:26:25.2**

**CTR** and East Coast Jet eighty one how much of a right turn are you gonna make?

**09:26:30.8**

**RDO-2** \* about a three ten heading 'bout twenty- ah twenty five degrees.

**09:26:35.9**

**CTR** East Coast Jet eighty one roger deviation right of course approved.

**09:26:39.0**

**RDO-2** deviation right East Coast eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:27:04.5**  
**HOT-1** I know.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:27:31.7**  
**CTR** East Coast Jet eighty one contact Minneapolis center one three four point eight five for lower.

**09:27:36.7**  
**RDO-2** one thirty four eighty five East Coast Jet eighty one.

**09:27:43.8**  
**RDO-2** Minneapolis center East Coast Jet eighty one two four zero three ten heading.

**09:27:48.4**  
**CTR** East Coast Jet tw- ah eighty one Minneapolis center roger and ah I guess I gotta ask you to say intentions what would you like to do? 'cause I can't even give you a good recommendation right now.

**09:27:57.7**  
**RDO-1** well looks like ah we are on a three ten heading around it here looks ah I got it clear probably for another forty miles before we can \* left turn to the field.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:28:41.9**

**HOT-1** I didn't really hear what he was sayin' on the ah, whether we're on approach control or what I mean \* what # difference does it make?

**09:28:47.2**

**HOT-2** yeah who what the # do what do we care?

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:28:10.6**

**CTR** alright what altitude do you wanna go to because ah any lower altitude(s) than eighteen you're gonna go into Minneapolis, approach controls airspace which I could certainly do if you want just let me know if you wanna go ah above that altitude I can take you around that.

**09:28:26.4**

**RDO-1** ah whatever's easiest you know I don't really have a, preference.

**09:28:31.5**

**CTR** East Coast Jet eighty one ah descend and maintain flight level one niner zero let me know if that works if you want another altitude let me know.

**09:28:37.9**

**RDO-2** one nine zero and ah we'll let you know when we get there East Coast Jet eighty one.

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:28:49.6</b> HOT-1	all I care * is above ten and we go fast so we can get around this # thing.
<b>09:28:53.0</b> HOT-2	right.
<b>09:28:55.3</b> HOT-2	I don't think * I mean he said he couldn't climb us but why would we wanna climb?
<b>09:28:59.0</b> HOT-1	exactly so he can.
<b>09:29:00.3</b> HOT-2	so we get more in it?
<b>09:29:00.3</b> HOT-1	yeah.
<b>09:29:03.9</b> HOT-1	ah #.
<b>09:29:17.5</b> HOT-2	got twenty nine eighty six.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:29:07.9</b> CTR	East Coast Jet descend and maintain one ah four fourteen thousand and ah I'll get you a local altimeter on Owatonna in a minute.
<b>09:29:15.5</b> RDO-2	fourteen thousand East Coast Jet eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:29:26.6**

**HOT-1** ice is on ignitions are on, wings are on.

**09:30:09.1**

**HOT-1** good thing I didn't tell 'em it was gonna be a smooth ride huh? I looked at the radar and there wasn't anything.

**09:30:10.8**

**HOT-2** [sound similar to laughter].

**09:30:15.3**

**HOT-2** but doesn't it figure pops up right when we get here?

**09:30:17.7**

**HOT-1** yeah.

**09:30:20.4**

**HOT-1** what do you mean what are my intentions? get me around this # storm so I can go to the field.

**09:30:23.9**

**HOT-2** right.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:29:17.9**

**CTR** East Coast Jet eighty one Owatonna altimeter's two niner eight eight.

**09:29:21.6**

**RDO-2** two nine eight eight East Coast Jet eighty one.

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:30:24.8</b> <b>HOT-1</b>	I ain't gonna turn around and go home.
<b>09:30:25.0</b> <b>CAM</b>	[sound of increased background noise consistent with rain impacting the windscreen].
<b>09:30:26.5</b> <b>HOT-2</b>	[sound similar to laughter].
<b>09:30:32.4</b> <b>HOT-1</b>	ah another twenty five miles and we can make the turn probably 'er twenty probably less than that we'll make a cut here in a second.
<b>09:30:34.8</b> <b>HOT-2</b>	yeah.
<b>09:30:37.9</b> <b>HOT-2</b>	yeah we can (cut).
<b>09:30:49.9</b> <b>HOT-1</b>	* on how's your wing look?
<b>09:30:53.3</b> <b>HOT-2</b>	ah there's a little bit out there.
<b>09:30:56.0</b> <b>HOT-1</b>	teeny teeny bit?
<b>09:30:57.0</b> <b>HOT-2</b>	yeah just a li- little bit.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:31:11.7</b> <b>HOT-1</b>	(know) what the #.
<b>09:31:28.3</b> <b>HOT-2</b>	ah it's gone.
<b>09:31:53.7</b> <b>HOT-2</b>	* call I'm off I'm gonna call FBO.
<b>09:31:55.8</b> <b>HOT-1</b>	alright.
<b>09:32:21.0</b> <b>HOT-1</b>	I just don't see that out there anymore. where the # did it go? is it above us?
<b>09:32:28.7</b> <b>HOT-2</b>	it might be above us.
<b>09:32:41.0</b> <b>HOT-2</b>	it must be.
<b>09:32:46.1</b> <b>HOT-1</b>	* we * turn toward the field then.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:32:31.1</b> <b>CTR</b>	East Coast Jet eighty one contact Minneapolis approach one two four point seven we'll see ya.
<b>09:32:36.4</b> <b>RDO-2</b>	twenty four seven East Coast Jet eighty one see ya.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:32:49.8**

**HOT-2** should I tell 'em we're starting our turn toward the field?

**09:32:52.9**

**HOT-1** yeah.

**09:33:07.5**

**HOT-1** nah hold on.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:32:53.7**

**RDO-2** Minneapolis East Coast Jet eighty one descending one six thousand to one four thousand we're gonna be starting our left turn towards a Owatonna.

**09:33:01.2**

**APR** East Coast Jet eighty one Minneapolis approach Minneapolis altimeter two niner seven eight and you said the center has turned you towards oracon- Owatonna (or) you requesting a turn?

**09:33:10.0**

**RDO-1** no we're requestin' a turn there we're not paintin' what we we're previously painting there so we show it's fairly clear between us and them we're ready whenever.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:33:20.4**  
**HOT** [sound similar to an electronic warning horn]

**09:33:37.0**  
**HOT-2** alright \* I'm off.

**09:33:38.1**  
**HOT-1** okay.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:33:17.2**  
**APR** \* Jet eighty one roger be about seven miles there's just ah 'bout four different boundaries of airspace come together there with three different facilities involved so I'm gonna take you another ah seven northwest then I'll start your turn in to the southwest.

**09:33:29.0**  
**RDO-1** okay no problem and we're out of fourteen five for one four thousand.

**09:33:32.1**  
**APR** \* I'll have you lower in about six miles out so.

**09:33:40.5**  
**RDO-2** Rare Air at Owatonna this is Hawker eight one eight Mike Victor.

**09:33:44.8**  
**APR** East Coast eighty one fly heading two eight zero.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:34:22.5**

**HOT-1** I got the ground, that's a plus.

**09:34:24.9**

**HOT-2** I'm not ta- I'm not gettin' anyone.

**09:34:26.5**

**HOT-1** okay.

**09:34:28.6**

**HOT-2** what did he give us?

**09:34:29.7**

**HOT-1** down to ah seven thousand.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:33:48.2**

**RDO-1** two eight zero eighty one.

**09:34:08.1**

**APR** East Coast eighty one turn left heading two five zero descend and maintain seven thousand.

**09:34:10.0**

**RDO-2** Rare Air Owatonna Hawker eight one eight Mike Victor.

**09:34:12.0**

**RDO-1** two five zero down to seven thousand eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:34:41.2**  
**HOT-2** down to six.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:34:30.3**  
**APR** East Coast eighty one descend and maintain six thousand contact approach one ah three four point seven.

**09:34:36.9**  
**RDO-2** thirty four seven six thousand East Coast Jet eighty one.

**09:34:46.0**  
**RDO-2** approach East Coast Jet eighty one one three thousand to six thousand.

**09:34:50.4**  
**APR** East Coast Jet eighty one \* approach \* ah roger and ah what approach do you wanna ah do at Owatonna?

**09:34:56.0**  
**RDO-2** \* \* could do the ILS.

**09:34:58.2**  
**APR** East Coast Jet eighty one roger descend and maintain a six thous- descend and maintain seven thousand turn a left a heading of one eight zero.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:35:10.7**

**HOT-1** seven thousand. I fixed it. one eighty.

**09:35:12.4**

**HOT-2** \* \* \* .

**09:35:18.6**

**HOT-1** and it's the ILS to three zero?

**09:35:20.3**

**HOT-2** ILS to three zero one oh nine five five.

**09:35:27.4**

**HOT-2** ah three oh two final approach course glideslope intercept two thousand eight hundred six. down to one thousand three hundred and forty six which is two hundred foot on the ah yeah radio altimeter.

**09:35:40.0**

**HOT-1** so you alright you're gettin' nobody on ah the ground there?

**09:35:43.5**

**HOT-2** no.

**09:35:44.2**

**HOT-1** okay let's do the approaches real quick.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:35:06.7**

**RDO-2** seven thousand one eight zero East Coast Jet eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:35:46.0**

**HOT-2** alright harnesses?

**09:35:47.3**

**HOT-1** left.

**09:35:48.0**

**HOT-2** fuel?

**09:35:48.5**

**HOT-1** balanced and plenty.

**09:35:49.6**

**HOT-2** flight deck heat.

**09:35:50.4**

**HOT-1** closed.

**09:35:51.2**

**HOT-2** approach briefing.

**09:35:52.6**

**HOT-1** it's gonna be the ILS to three zero at Owatomba  
somethinish.

**09:35:58.4**

**HOT-2** landing data twenty two thirty two.

**09:36:01.2**

**HOT-1** thirty two set.

**09:36:02.4**

**HOT-2** nav info.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:36:05.8**

**HOT-1** ah ahm fifty five three oh two two hundred.

**09:36:06.4**

**HOT-2** radio set one oh nine five five.

**09:36:10.8**

**HOT-2** ah radar altimeter.

**09:36:12.6**

**HOT-1** whooa just cleared my ears and I'm totally dizzy.  
I'm in a left turn right now. [sound similar to  
laughter].

**09:36:18.6**

**HOT-2** ah \*.

**09:36:20.6**

**HOT-1** its goin' away okay sorry.

**09:36:22.7**

**HOT-2** alright radar altimeter.

**09:36:23.5**

**HOT-1** two hundred feet.

**09:36:24.5**

**HOT-2** brake handle.

**09:36:26.1**

**HOT-1** forward.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:36:26.9**  
**HOT-2** steering.

**09:36:27.4**  
**HOT-1** clear.

**09:36:48.3**  
**HOT** [sound similar to electronic warning horn].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:36:26.9**  
**APR** East Coast Jet eighty one contact \* approach one oh niner point eight.

**09:36:31.4**  
**RDO-2** one one nine eight East Coast Jet eighty one.

**09:36:39.9**  
**RDO-2** Rochester East Coast Jet eighty one descending eight for seven thousand.

**09:36:45.5**  
**APR** East Coast eighty one Rochester approach descend at pilot's discretion maintain three thousand turn right heading one niner zero vector ILS runway three zero at Owatonna.

**09:36:54.8**  
**RDO-2** three thousand one nine zero vectors for the ILS three zero.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:37:31.7**  
**HOT-1** thank you.

**09:37:40.7**  
**HOT-1** I don't know what the # we're looking at on this thing.

**09:37:42.9**  
**HOT-2** well neither do I.

**09:37:43.3**  
**HOT-1** right now.

**09:37:44.2**  
**HOT-2** I don't know if it's not working.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:37:01.5**  
**APR** and East Coast Jet eighty one ah I just picked up the weather for you at Owatonna it's about ah twenty minutes old now they're showing the wind three two zero at eight visibility ten or greater thunderstorms three thousand seven hundred scattered ceiling four thousand five hundred broken five thousand overcast temperature one eight dewpoint one six altimeter two niner eight eight and they're showing lightening in the distance all quadrants.

**09:37:32.6**  
**RDO-2** alright thank you very much East Coast Jet eighty one.

XXX

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:37:45.7</b> HOT-1	is that ground?
<b>09:37:47.8</b> HOT-1	'cause I got it pointed way up in the air.
<b>09:37:51.1</b> HOT-1	you know I got it we're goin' down I got it pointed up.
<b>09:37:52.8</b> HOT-2	pointed up yeah.
<b>09:37:55.1</b> HOT-1	and ish you know.
<b>09:37:56.5</b> HOT-2	you would think that.
<b>09:37:56.5</b> HOT-1	* *. I don't know what we're lookin' at.
<b>09:37:57.9</b> HOT-2	is that the storm or is it?
<b>09:37:59.7</b> HOT-1	hard to say.
<b>09:38:00.7</b> HOT-2	but * if you look out the window which I think maybe right now is best.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:38:04.9**

**HOT-1** [sound similar to laughter].

**09:38:24.9**

**HOT-1** roger.

**09:38:27.3**

**HOT-1** the sooner you get us there the better.

**09:38:30.9**

**HOT-2** yeah.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:38:07.3**

**APR** and East Coast Jet eighty one ah I am showing light precip for you uhm pretty much your whole route into Owatonna and then there's just a couple of heavy cells uhm about ah five miles north and north east of Owatonna.

**09:38:25.8**

**RDO-2** roger East Coast eighty one.

**09:38:31.8**

**APR** East Coast Jet eighty one turn right heading two zero zero.

**09:38:34.1**

**RDO-2** two zero zero East Coast eighty one.

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:38:35.9</b> HOT-1	you now when they start sayin' this stuff it's like are you trying to tell me sometheing?
<b>09:38:39.1</b> HOT-2	right.
<b>09:38:40.1</b> HOT-1	because I'm not gettin' it.
<b>09:38:40.6</b> HOT-2	*.
<b>09:38:41.6</b> HOT-2	[sound similar to laughter].
<b>09:38:42.4</b> HOT-1	[sound similar to laughter].
<b>09:38:44.2</b> HOT-2	why don't just get us to the field.
<b>09:38:45.6</b> HOT	[sound similar to altitude alerter warning tone].
<b>09:38:46.4</b> HOT-2	one to go.
<b>09:38:47.6</b> HOT-1	one (bar).
<b>09:38:49.5</b> HOT-1	so approaches are done.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:38:51.0</b> <b>HOT-2</b>	approaches are done.
<b>09:38:52.8</b> <b>HOT-2</b>	except that notices yeah they're on.
<b>09:38:55.1</b> <b>HOT</b>	[sound similar to passenger notice chime].
<b>09:39:00.2</b> <b>HOT-1</b>	down to three.
<b>09:39:07.5</b> <b>HOT-1</b>	start gettin' her slowed up.
<b>09:39:10.4</b> <b>HOT-2</b>	I could try to get ahold of 'em again *.
<b>09:39:12.1</b> <b>HOT-1</b>	yeah go for it I got it.
<b>09:39:13.0</b> <b>HOT-2</b>	alright I'm off.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:39:16.3</b> <b>RDO-2</b>	Rare Air Owatonna Hawker eight one eight Mike Victor.
<b>09:39:33.8</b> <b>RDO-2</b>	Owatonna Hawker eight one eight Mike Victor anybody there?

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:39:45.3**

**HOT-2** no one.

**09:39:57.7**

**HOT-1** flaps one.

**09:40:02.9**

**CAM** [sound similar to mechanical click].

**09:40:04.5**

**HOT-2** one and indicating.

**09:40:12.2**

**HOT-1** why don't you really quickly go over and ah ID that thing? see if the localizer's even right?

**09:40:22.9**

**HOT** [sound of Morse code for OWA].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:39:55.3**

**APR** East Coast Jet eighty one turn right heading two five zero.

**09:39:58.7**

**RDO-2** two five zero East Coast Jet eighty one.

**09:40:21.2**

**APR** East Coast Jet eighty one is ah seven miles from TONNA turn right heading two niner zero maintain ah three thousand until established on the localizer cleared ILS runway three zero approach.

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:40:24.0</b> HOT-1	I got it.
<b>09:40:36.3</b> HOT-2	and it's right.
<b>09:40:37.2</b> HOT-1	okay good.
<b>09:41:19.3</b> HOT-1	loc's alive.
<b>09:41:20.9</b> HOT-2	ah loc's alive.
<b>09:41:24.8</b> HOT-1	why don't you make a call out on twenty two seven?
<b>09:41:27.0</b> HOT-2	alright.
<b>09:41:27.4</b> HOT-1	see if anything's goin' on let 'em know we're comin' in on ILS three zero. get the # outta the way.
<b>09:41:31.7</b> HOT-2	[sound similar to laughter].

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:40:31.0</b> RDO-1	two nine zero three thousand 'till established cleared for the ILS ah three zero eighty one.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE                      CONTENT

**09:41:37.7**  
**HOT-1**        wrong f- wrong freq. man.

**09:41:40.4**  
**HOT-1**        change your.

**09:41:41.1**  
**HOT-2**        \* \* .

AIR-GROUND COMMUNICATION

TIME and  
SOURCE                      CONTENT

**09:41:32.9**  
**RDO-2**        Owatonna this is a Hawker on a ten mile f-.

**09:41:38.6**  
**APR**           \* \* correction \* East Coast Jet eighty one  
report canceling IFR this frequency in the air  
or with Princeton flight service on the ground  
change to advisory is approved.

**09:41:47.7**  
**RDO-2**        East Coast Jet eighty one we will report  
canceling with you or on the ground.

**09:41:54.1**  
**RDO-2**        Owatonna this a Hawker on a ah ten mile final  
the ILS three zero anyone around?

**09:41:59.8**  
**RDO-1**        and East Coast eighty one we'll cancel now  
we have the runway in sight.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:42:21.9**  
**CAM**

[increase in background noise consistent with gear extension].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:42:04.2**  
**APR**

East Coast eight eighty one roger IFR cancellation is received squawk VFR frequency change approved.

**09:42:04.4**  
**FBO**

this is Owatonna UNICOM go ahead please.

**09:42:08.9**  
**RDO-2**

Owatonna there's a Hawker eight one eight Mike Victor about eight miles out comin' inbound gonna be droppin' off eight passengers stayin' with you for about two hours and ah, what what do we need to do for fuel do we need to taxi somewhere for the fuel?

**09:42:09.4**  
**RDO-1**

squawkin' VFR change approved and you don't show any traffic in the area of Owatonna do ya?

**09:42:15.7**  
**APR**

East Coast jet eighty one no no traffic reported or observed in the vicinity.

**09:42:19.1**  
**RDO-1**

thank you.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:42:37.4**  
**HOT-1** three green no red pressures good back to zero steering's clear.

**09:42:43.9**  
**HOT** [sound similar to autopilot disconnect warning].

**09:42:49.4**  
**HOT-2** alright.

**09:42:52.5**  
**HOT-2** he said that we're gonna drop 'em off and then le- leave one runnin' or whatever and then we could go park in front of the ah fuel thing and they'll come over and take our order.

**09:42:59.2**  
**HOT** [sound similar to altitude alerter warning tone].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:42:24.3**  
**FBO** affirmative we do have a ah \* \* \* \* \* there's a there's a red box that's the AVGAS pump but the white box is the jet fuel.

**09:42:38.1**  
**FBO** or if you wanna park just park in front of it that's fine ahm and then we'll we can get your fuel order inside.

**09:42:45.5**  
**RDO-2** alright thank you we'll do that East Coast Je- ah Hawker eight one eight Mike Victor.

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:43:01.8</b> HOT-1	oh okay do we know where the fuel thing is are they gonna meet us out there?
<b>09:43:04.9</b> HOT-2	* *.
<b>09:43:05.2</b> HOT-1	flaps two.
<b>09:43:06.9</b> CAM	[sound similar to two clicks].
<b>09:43:07.6</b> HOT-1	why don't you go through the before landings make sure you got it all.
<b>09:43:13.6</b> CAM	[sound similar to click].
<b>09:43:14.4</b> HOT-1	down indicatin' down.
<b>09:43:25.7</b> CAM	[sound similar to click].
<b>09:43:28.1</b> HOT-2	and before landing shorts to go.
<b>09:43:30.0</b> CAM	[sound similar to double click].

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:43:36.4</b> HOT	one thousand [electronic voice].
<b>09:44:02.4</b> HOT-1	squawk twelve hundred real quick would ya?
<b>09:44:07.9</b> HOT-2	did you cancel?
<b>09:44:09.0</b> HOT-1	yeah.
<b>09:44:25.2</b> HOT	four hundred [electronic voice].
<b>09:44:26.1</b> CAM	[sound similar to click].
<b>09:44:29.3</b> HOT-1	I'm goin' right to the tiller and the brakes.
<b>09:44:31.2</b> HOT-2	okay.
<b>09:44:32.1</b> HOT	three hundred [electronic voice].
<b>09:44:42.2</b> CAM	[sound similar to click].
<b>09:44:45.7</b> HOT-1	slowin' to ref.

AIR-GROUND COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
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INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:44:46.8**

**CAM** [sound similar to multiple clicks].

**09:44:46.8**

**HOT** two minimums minimums [electronic voice].

**09:44:47.2**

**HOT-2** air valves are shut damper to go.

**09:44:56.0**

**HOT-1** birds.

**09:45:01.0**

**HOT-2** damper.

**09:45:02.2**

**CAM** [sound similar to one click].

**09:45:04.0**

**CAM** [sound consistent with tires rolling on a prepared surface].

**09:45:04.7**

**CAM** [sound similar to kachunk].

**09:45:06.5**

**CAM** [sound similar to airbrakes going to open].

**09:45:07.7**

**HOT-2** (we're) dumped.

**09:45:09.4**

**HOT-2** we're not dumped.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:45:11.0**

**HOT-1** no we're not. [sounds similar to straining while saying "not"].

**09:45:11.3**

**CAM** [sound similar to airbrakes/lift dump handle going to lift dump position].

**09:45:18.1**

**CAM** [sound similar to slightly elevated breathing].

**09:45:19.4**

**CAM** [multiple sounds similar to mechanical clicks].

**09:45:20.3**

**CAM** [sound similar to airbrakes going to shut].

**09:45:21.1**

**CAM** [sound similar to kachunk].

**09:45:21.5**

**HOT-1** flaps.

**09:45:22.0**

**CAM** [sound consistent with increasing engine noise].

**09:45:23.1**

**HOT-1** #.

**09:45:27.0**

**HOT-1** here we go.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

<u>TIME and SOURCE</u>	<u>CONTENT</u>
<b>09:45:30.0</b> HOT-1	not flyin' not # flyin'.
<b>09:45:30.2</b> CAM	[sound of increasing impulsive background noise].
<b>09:45:36.4</b> HOT	bank angle bank angle [electronic voice].
<b>09:45:36.7</b> HOT-1	#.
<b>09:45:37.1</b> HOT-2	(over here).
<b>09:45:37.9</b> HOT-2	*.
<b>09:45:38.0</b> HOT-1	#.
<b>09:45:38.5</b> HOT-?	*.
<b>09:45:39.0</b>	End of Transcript
<b>09:45:44.5</b>	End of Recording

AIR-GROUND COMMUNICATION

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