

**NATIONAL TRANSPORTATION SAFETY BOARD**  
**Office of Research and Engineering**  
**Vehicle Recorder Division**  
**Washington, D.C. 20594**



**GROUP CHAIRMAN'S FACTUAL REPORT OF INVESTIGATION**

**DCA08MA085**

**By**  
**Joe Gregor**

**WARNING**

The reader of this report is cautioned that the transcription of a cockpit voice recorder audio recording 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 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 Recorder Division  
Washington, D.C. 20594

January 26, 2009

**Cockpit Voice Recorder - 12**

**Group Chairman's Factual Report  
By Joe 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

**B. GROUP** A group was convened on August 4, 2008.

Chairman: Joe Gregor  
National Transportation Safety Board

Member: Michael Cummins  
Senior Chief Engineer  
Honeywell

Member: Brad Cole  
Captain  
East Coast Jets

Member: Chris Harrold  
Product Test Pilot  
Hawker Beechcraft

Member: Floyd A. James  
Air Safety Investigator  
FAA

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\* All times are expressed in Central Daylight Time, unless otherwise noted.

## C. SUMMARY

On July 31, 2008, a BAE-125-800A, registration N818MV operated by East Coast Jets, was destroyed when it impacted terrain during an attempted go-around from runway 30 at the Owatonna Degner Regional Airport (OWA), Owatonna, Minnesota. A tape-based cockpit voice recorder (CVR) was sent to the National Transportation Safety Board's Audio Laboratory for readout. The CVR group meeting convened on August 4, 2008 and a full transcript was prepared for the 30-minute, 44-second tape recording (see attached).

## D. DETAILS OF INVESTIGATION

On July 31, 2008, the NTSB Vehicle Recorder Division's Audio Laboratory received the following CVR:

Recorder Manufacturer/Model: **Fairchild Model A-100**  
Recorder Serial Number: **60249**

### **Recorder Description**

Per Federal regulation, CVRs record a minimum of the last 30 minutes of aircraft operation; this is accomplished by recording over the oldest audio data. When the CVR is deactivated or removed from the airplane, it retains only the most recent 30 minutes of CVR operation. This model CVR, the Fairchild Model A-100, records 30 minutes of analog audio on a continuous loop tape in a four-channel format: one channel for each flight crew and one channel for the cockpit area microphone (CAM).

### **Recorder Damage**

Upon arrival at the audio laboratory, it was evident that the CVR had not sustained significant heat or structural damage and the audio information was extracted from the recorder normally, without difficulty.

### **Audio Recording Description**

The 30-minute, 44-second recording consisted of three channels of useable audio information. Each channel's audio quality<sup>†</sup> is indicated in the table. Notably, channel number four did not contain any audio information (nor was it required by Federal regulations).

<b>Channel Number</b>	<b>Content/Source</b>	<b>Quality</b>
1	Captain	excellent
2	CAM	excellent
3	Ist Officer	excellent
4	other	N/A

<sup>†</sup> See attached CVR Quality Rating Scale.

## Timing and Correlation

Timing on the transcript was established by correlating the air traffic control recording transmission time to the corresponding CVR event.<sup>‡</sup> Specifically, the CVR time of the final radio transmission from N818MV was linked to the corresponding ATC local time, and all CVR events were offset to reflect the local time of the accident.<sup>§</sup>

## Description of Audio Events

The recording began at 0915:01, and the transcript began at 0915:28. At 0922:04, the center controller cleared East Coast Jet 81 to descend pilot's discretion down to FL240. From 0923:33 to 0924:57, the cockpit area microphone (CAM) recorded the Owatonna Municipal Airport's automated weather observation service (AWOS) broadcast. At 0925:37, the center controller asked East Coast Jet 81 if they were observing the extreme precipitation at their 12 O'clock. The first officer (FO) replied that they were "paintin' it" on the aircraft radar. At 0926:14 East Coast Jet 81 requested a deviation around the weather which was approved by the center controller. At 0927:32, the center controller gave East Coast Jet 81 another frequency for Minneapolis center which the FO acknowledged. At 0932:31, the center controller gave East Coast Jet 81 another frequency for Minneapolis approach which the FO acknowledged. At 0933:41, the FO began attempting to contact the FBO (Rare Air) at Owatonna. At 0935:40, the captain requested that the approach checklist be performed. At 0936:46, the approach controller cleared East Coast Jet 81 to descend pilot's discretion to 3000 feet and gave vectors for the ILS approach to Owatonna. At 0937:03, the approach controller gave East Coast Jet 81 the weather for Owatonna, and stated that the report was about 20-minutes old. At 0938:51, the FO confirmed that the "approaches are done." At 0939:16, the FO attempted again to contact the FBO at Owatonna. At 0939:58, the captain called for "flaps one" and the FO replied "one and indicating." At 0940:21, the approach controller issued East Coast Jet 81 a turn to heading 290 and cleared the aircraft for the ILS RWY 30 approach. At 0941:19, the captain announced "loc's alive." At 0942:00, the captain announced that he had the field in sight and cancelled IFR. From 0942:04 to 0942:46, the FBO at Owatonna and the FO from East Coast Jet 81 conversed concerning aircraft ground stop requirements on UNICOM. At 0943:05, the captain called for "flaps two" and called for the before landing checklist to be performed. Approximately 23-seconds later the FO responded "and before landing, shorts to go." At 0944:02, the captain asked the FO to change the transponder code to 1200. About 23-seconds later an electronic voice announced "400." At 0944:47, an electronic voice announced "two, minimums, minimums." At 0945:01, the FO announced "dampers." At 0945:04, the Cam recorded sounds consistent with the aircraft rolling on a prepared surface. Approximately 5.4-seconds later the FO announced "we're not dumped" and the captain responded "no, we're not." Approximately 17.6 seconds later, the captain announced "here we go." Approximately 9.7-seconds later an electronic voice announced "bank angle, bank angle." The recording ended shortly thereafter at 0945:45.

Joe Gregor  
Vehicle Recorder Division

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<sup>‡</sup> FAA Memorandum RST-ATCT-0080, Draft Partial Transcript from Rochester Airport Traffic Control Tower, August 15, 2008.

<sup>§</sup> Central Daylight Time.

## 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

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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.

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT**09:17:59.4  
HOT-1**

ahm.

**09:18:01.9  
HOT-1**M M ah M-S-P or S-T-P in in your VORs  
find out, what's that?**09:18:10.2  
HOT-1**

probably M-S-P or S-T-P.

**09:18:25.5  
HOT-1**

VOR section.

**09:18:28.9  
HOT-1**

I don't know where it is but.

**09:18:30.6  
HOT-2**

\*.

**09:18:36.1  
HOT-1**

there ya go.

**09:18:56.0  
HOT-2**

Minneapolis one fifteen point three.

**09:19:07.4  
HOT-1**hundred and forty miles right over there  
so looks like it's about hundred only  
about twenty miles from there. that  
right?**09:19:12.8  
HOT-2**

yeah it shouldn't be too far.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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].

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENTTIME and  
SOURCECONTENT**09:20:13.9****HOT-2** I'm not gettin' it yet.**09:20:15.4****HOT-1** okay.**09:21:05.3****HOT-1** think we're gonna have to deal with any of that.**09:21:14.2****HOT-1** 'cause we should be comin' down here pretty soon.**09:21:16.4****HOT-2** yeah.**09:22:03.6****CTR** East Coast Jet eight one descend at your discretion and maintain flight level two four zero.**09:22:07.9****RDO-2** two four zero East Coast eighty one.**09:23:07.0****HOT** (\* \* Celsius dewpoint one six altimeter \* niner eight six remarks lightening distance all quadrants\*)**09:23:17.9****AWOS** Celsius. \* niner.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:23:19.2**  
**HOT-2** twenty four.

**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 \* \* .

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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.

**09:24:02.4**  
**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.

**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.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**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].

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

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:25:20.3**  
**CTR** East Coast Jet eighty one contact  
Minneapolis center on ah one three four  
point two five.

**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?

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:25:43.1**  
**HOT-2**

yeah they're paintin' it what's the bases?

**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.

**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.

**09:26:05.5**  
**CAM**

[sound similar to altitude alerter tone].

**09:26:13.9**

**RDO-2**

(I would) like to deviate to the right East Coast eighty one.

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENTTIME and  
SOURCECONTENT**09:26:19.5  
HOT-1**

any lower?

**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.

**09:26:25.2  
CTR**

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

**09:26:28.4  
HOT-1**

ah we're about a three ten heading.

**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

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**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.

**09:27:04.5**

**HOT-1** I know.

**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.

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENTTIME and  
SOURCECONTENT

**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.

**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.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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?

**09:28:49.6**  
**HOT-1** all I care \* is above ten and we go fast  
so we can get around this # thing.

**09:28:53.0**  
**HOT-2** right.

**09:28:55.3**  
**HOT-2** I don't think \* I mean he said he couldn't  
climb us but why would we wanna  
climb?

**09:28:59.0**  
**HOT-1** exactly so he can.

**09:29:00.3**  
**HOT-2** so we get more in it?

**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

TIME and  
SOURCE

CONTENT

**09:29:00.3**  
**HOT-1** yeah.

**09:29:03.9**  
**HOT-1** ah #.

**09:29:17.5**  
**HOT-2** got twenty nine eighty six.

**09:29:26.6**  
**HOT-1** ice is on ignitions are on, wings are on.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:29:07.9**  
**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.

**09:29:15.5**  
**RDO-2** fourteen thousand East Coast Jet eighty  
one.

**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

TIME and  
SOURCE

CONTENT

**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.

**09:30:24.8**  
**HOT-1** I ain't gonna turn around and go home.

**09:30:25.0**  
**CAM** [sound of increased background noise consistent with rain impacting the windscreen].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:30:26.5**  
**HOT-2**

[sound similar to laughter].

**09:30:32.4**  
**HOT-1**

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.

**09:30:34.8**  
**HOT-2**

yeah.

**09:30:37.9**  
**HOT-2**

yeah we can (cut).

**09:30:49.9**  
**HOT-1**

\* on how's your wing look?

**09:30:53.3**  
**HOT-2**

ah there's a little bit out there.

**09:30:56.0**  
**HOT-1**

teeny teeny bit?

**09:30:57.0**  
**HOT-2**

yeah just a li- little bit.

**09:31:11.7**  
**HOT-1**

(know) what the #.

**09:31:28.3**  
**HOT-2**

ah it's gone.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATIONTIME and  
SOURCECONTENT

**09:31:53.7**  
**HOT-2** \* call I'm off I'm gonna call FBO.

**09:31:55.8**  
**HOT-1** alright.

**09:32:21.0**  
**HOT-1** I just don't see that out there anymore.  
where the # did it go? is it above us?

**09:32:28.7**  
**HOT-2** it might be above us.

**09:32:41.0**  
**HOT-2** it must be.

**09:32:46.1**  
**HOT-1** \* we \* turn toward the field then.

**09:32:49.8**  
**HOT-2** should I tell 'em we're starting our turn  
toward the field?

AIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT

**09:32:31.1**  
**CTR** East Coast Jet eighty one contact  
Minneapolis approach one two four point  
seven we'll see ya.

**09:32:36.4**  
**RDO-2** twenty four seven East Coast Jet eighty one  
see ya.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**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.

**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.

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

**09:33:29.0  
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-1**

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.

**09:33:48.2  
RDO-1**

two eight zero eighty one.

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

**09:34:08.1**  
**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.

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

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:34:41.2**  
**HOT-2**

down to six.

**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.

**09:35:06.7**  
**RDO-2**

seven thousand one eight zero East Coast  
Jet eighty one.

**09:35:10.7**  
**HOT-1**

seven thousand. I fixed it. one eighty.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**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.

**09:35:46.0**  
**HOT-2**

alright harnesses?

**09:35:47.3**  
**HOT-1**

left.

INTRA-COCKPIT COMMUNICATIONTIME and  
SOURCECONTENT

**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.

**09:36:05.8**  
HOT-1 ah ahm fifty five three oh two two  
hundred.

AIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**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.

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

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

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

**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.

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

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

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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.

**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.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:37:45.7**  
**HOT-1** is that ground?

**09:37:47.8**  
**HOT-1** 'cause I got it pointed way up in the air.

**09:37:51.1**  
**HOT-1** you know I got it we're goin' down I got it pointed up.

**09:37:52.8**  
**HOT-2** pointed up yeah.

**09:37:55.1**  
**HOT-1** and ish you know.

**09:37:56.5**  
**HOT-2** you would think that.

**09:37:56.5**  
**HOT-1** \* \*. I don't know what we're lookin' at.

**09:37:57.9**  
**HOT-2** is that the storm or is it?

**09:37:59.7**  
**HOT-1** hard to say.

**09:38:00.7**  
**HOT-2** but \* if you look out the window which I think maybe right now is best.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

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

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:38:35.9**

**HOT-1**

you now when they start sayin' this stuff  
it's like are you trying to tell me  
sometheing?

**09:38:39.1**

**HOT-2**

right.

**09:38:40.1**

**HOT-1**

because I'm not gettin' it.

**09:38:40.6**

**HOT-2**

\*.

**09:38:41.6**

**HOT-2**

[sound similar to laughter].

**09:38:42.4**

**HOT-1**

[sound similar to laughter].

**09:38:44.2**

**HOT-2**

why don't just get us to the field.

**09:38:45.6**

**HOT**

[sound similar to altitude alerter warning  
tone].

**09:38:46.4**

**HOT-2**

one to go.

**09:38:47.6**

**HOT-1**

one (bar).

INTRA-COCKPIT COMMUNICATIONTIME and  
SOURCECONTENT

**09:38:49.5**  
**HOT-1** so approaches are done.

**09:38:51.0**  
**HOT-2** approaches are done.

**09:38:52.8**  
**HOT-2** except that notices yeah they're on.

**09:38:55.1**  
**HOT** [sound similar to passenger notice chime].

**09:39:00.2**  
**HOT-1** down to three.

**09:39:07.5**  
**HOT-1** start gettin' her slowed up.

**09:39:10.4**  
**HOT-2** I could try to get ahold of 'em again \*.

**09:39:12.1**  
**HOT-1** yeah go for it I got it.

**09:39:13.0**  
**HOT-2** alright I'm off.

AIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT

**09:39:16.3**  
**RDO-2** Rare Air Owatonna Hawker eight one eight  
Mike Victor.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:39:45.3**  
**HOT-2**

no one.

**09:39:33.8**  
**RDO-2**

Owatonna Hawker eight one eight Mike  
Victor anybody there?

**09:39:55.3**  
**APR**

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

**09:39:57.7**  
**HOT-1**

flaps one.

**09:39:58.7**  
**RDO-2**

two five zero East Coast Jet eighty 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?

INTRA-COCKPIT COMMUNICATIONTIME and  
SOURCECONTENT

**09:40:22.9**  
**HOT** [sound of Morse code for OWA].

**09:40:24.0**  
**HOT-1** I got it.

**09:40:36.3**  
**HOT-2** and it's right.

**09:40:37.2**  
**HOT-1** okay good.

**09:41:19.3**  
**HOT-1** loc's alive.

**09:41:20.9**  
**HOT-2** ah loc's alive.

AIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT

**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.

**09:40:31.0**  
**RDO-1** two nine zero three thousand 'till established cleared for the ILS ah three zero eighty one.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:41:24.8**  
**HOT-1** why don't you make a call out on twenty two seven?

**09:41:27.0**  
**HOT-2** alright.

**09:41:27.4**  
**HOT-1** see if anything's goin' on let 'em know we're comin' in on ILS three zero. get the # outta the way.

**09:41:31.7**  
**HOT-2** [sound similar to laughter].

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

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

**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.

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

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

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENTTIME and  
SOURCECONTENT**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.

**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?

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:42:21.9  
CAM**

[increase in background noise  
consistent with gear extension].

**09:42:37.4  
HOT-1**

three green no red pressures good back  
to zero steering's clear.

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

squawkin' VFR change approved and you  
don't show any traffic in the area of Owatto-  
tona 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.

**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.

INTRA-COCKPIT COMMUNICATION

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

TIME and  
SOURCE

CONTENT

**09:42:43.9  
HOT**

[sound similar to autopilot disconnect warning].

**09:42:45.5  
RDO-2**

alright thank you we'll do that East Coast  
Je- ah Hawker eight one eight Mike Victor.

**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].

**09:43:01.8  
HOT-1**

oh okay do we know where the fuel  
thing is are they gonna meet us out  
there?

**09:43:04.9  
HOT-2**

| \* \* .

**09:43:05.2  
HOT-1**

flaps two.

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:43:06.9**  
**CAM**

[sound similar to two clicks].

**09:43:07.6**  
**HOT-1**

why don't you go through the before  
landings make sure you got it all.

**09:43:14.4**  
**HOT-1**

down indicatin' down.

**09:43:28.1**  
**HOT-2**

and before landing shorts to go.

**09:43:36.4**  
**HOT**

one thousand [electronic voice].

**09:44:02.4**  
**HOT-1**

squawk twelve hundred real quick  
would ya?

**09:44:07.9**  
**HOT-2**

did you cancel?

**09:44:09.0**  
**HOT-1**

yeah.

**09:44:25.2**  
**HOT**

four hundred [electronic voice].

**09:44:29.3**  
**HOT-1**

I'm goin' right to the tiller and the  
brakes.

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:44:31.2**  
**HOT-2** okay.

**09:44:32.1**  
**HOT** three hundred [electronic voice].

**09:44:45.7**  
**HOT-1** slowin' to ref.

**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 mechanical click].

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT

INTRA-COCKPIT COMMUNICATIONTIME and  
SOURCECONTENT

**09:45:06.5**  
**CAM** [sound similar to mechanical click].

**09:45:07.7**  
**HOT-2** (we're) dumped.

**09:45:09.4**  
**HOT-2** we're not dumped.

**09:45:11.0**  
**HOT-1** no we're not.

**09:45:11.6**  
**CAM** [sound similar to mechanical clunk].

**09:45:19.4**  
**CAM** [multiple sounds similar to mechanical clicks].

**09:45:20.3**  
**CAM** [sound similar to mechanical clunk].

**09:45:21.5**  
**HOT-1** flaps.

**09:45:22.0**  
**CAM** [sound consistent with increasing engine noise].

**09:45:23.1**  
**HOT-1** #.

AIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT

INTRA-COCKPIT COMMUNICATIONAIR-GROUND COMMUNICATIONTIME and  
SOURCECONTENT**09:45:27.0****HOT-1** here we go.**09:45:30.0****HOT-1** not flyin' not # flyin'.**09:45:30.2****CAM** [sound of increasing impulsive background noise].**09:45:36.4****HOT** bank angle bank angle [electronic voice].**09:45:36.7****HOT-1** #.**09:45:37.1****HOT-2** (over here).**09:45:37.9****HOT-2** \*.**09:45:38.0****HOT-1** #.**09:45:38.5****HOT-?** \*.TIME and  
SOURCECONTENT

INTRA-COCKPIT COMMUNICATION

TIME and  
SOURCE

CONTENT

**09:45:39.0**

End of Transcript

**09:45:44.5**

End of Recording

AIR-GROUND COMMUNICATION

TIME and  
SOURCE

CONTENT